Statistical Bulletin
METROPOLITAN LIFE INSURANCE COMPANY

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## The Problem of the Common Cold

THE common cold, which affects large numbers of people in our country each year, as it does in every region of the world, causes an enormous amount of disability and loss of time from usual activity. Although the common cold itself is insignificant as a cause of death, it may lead to serious consequences among the chronically ill, as evidenced by the rise in mortality from chronic disease when acute respiratory infections increase in prevalence. Nevertheless, knowledge concerning the common cold is surprisingly limited. A major difficulty has been the lack of specific and ready identification of the organisms responsible for the infection. Moreover, the manifestations of a cold may differ from one attack to the next and are often difficult to distinguish from those causing other types of upper respiratory infection. As a result, the common cold is frequently classified together with a number of conditions of diverse etiology. The reliability of statistics on the cold is further affected by the fact that the infection is generally of short duration and is often self-diagnosed. The best statistical information available is from the records of the Armed Forces, from special studies of school and college students, and from various investigations in small communities and groups of families.

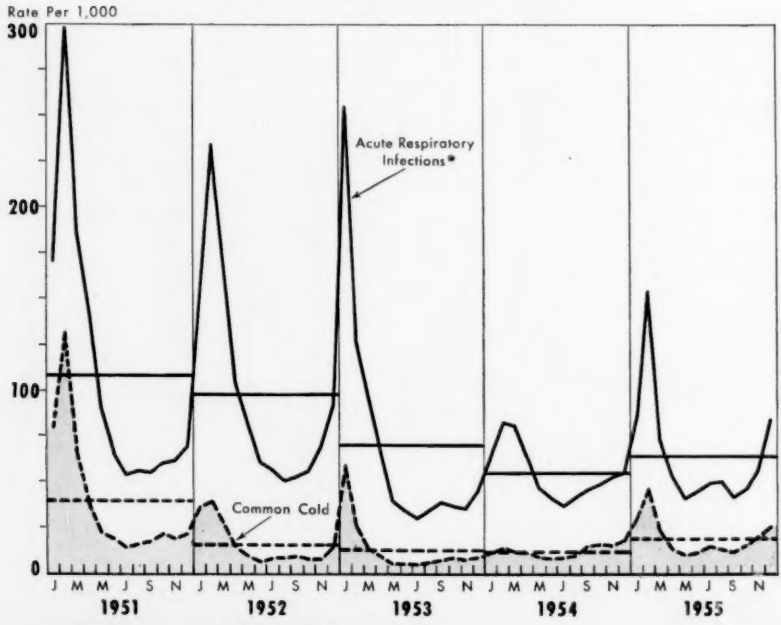
The common cold is the leading cause of absenteeism among elementary school children, according to studies made in several California cities and in Canada. The California survey, in which the Metropolitan Life Insurance Company participated, showed that colds were responsible for about one third of the absences and the time lost from school. The acute respiratory diseases as a whole (including colds) were reported as the cause of somewhat over two fifths of the absences and time lost.

The monthly and annual variations in the incidence of the common cold and of acute upper respiratory infections as a group are brought out in the chart on page 2; the data cover the period 1951-55 and relate to the experience of the Navy and Marine Corps, the only

one of the armed services routinely reporting statistics on the common cold as a separate category. Both curves in the chart show a seasonal pattern: a rise from a minimum in summer or early autumn to a peak in midwinter, followed by a rapid decline to a level which approaches the minimum by late spring. However, the annual range from maximum to minimum incidence is wide and varies from one year to another. For example, in 1953 the highest monthly incidence rate for colds was at least 11 times the lowest, whereas the following year the maximum rate was little more than twice the minimum. Over the entire 5-year period, the maximum was about 25 times the minimum, the rates ranging from 131.2 per 1,000 in February 1951 to 5.2 in July 1953.

Children have a higher incidence of colds and other acute respiratory infections than do adults. This is indicated by studies in several areas—two small New York State

**INCIDENCE OF COMMON COLD AND ACUTE UPPER RESPIRATORY INFECTIONS**
**United States Navy and Marine Corps, 1951-55**
**(Monthly Rate per 1,000 Strength—Annual Basis)**




*Including the common cold, but excluding pneumonia.

Note: Horizontal lines represent rates for year as a whole.

Source of basic data: Monthly issues of *Statistics of Navy Medicine*, Published by the Bureau of Medicine and Surgery, Navy Department. Data relate to Continental U.S. Shore Stations only.

communities, the Eastern Health District of Baltimore, and Cleveland. The Baltimore survey showed much higher case rates among the preschool children than among those of elementary school age. However, there is relatively little variation in the incidence rate by age during the main working period of life, according to the experience of men insured under Accident and Sickness policies in the Metropolitan Life Insurance Company.

Little sex difference is found in the case rate of acute respiratory infection among young children, but females record higher rates than males at ages over 10, particularly in adult life. The excess incidence among women may reflect, in part at least, their more frequent and closer contact with other members of the family who are infected. In this connection it is noteworthy that the New York studies showed a higher incidence rate among adults in families with young children than in families where there were only older children.

Susceptibility to colds appears to vary from one individual to another and from time to time in the same individual. Moreover, the duration of natural immunity following an attack seems to be relatively short. A series of studies on college students showed that about one fifth averaged more than two colds a year, while about the same proportion averaged one or less; the over-all average was three a year.

Until recently, research on the common cold had been desultory because the possibility of its control seemed dubious. However, in recent years interest has been stimulated by the discovery of laboratory procedures which provide better means of identifying the causative agents of the common cold. The progress made in this area enhances the prospect of developing effective vaccines and new methods of therapy.

Note: In addition to the data from the United States Navy, the principal statistical sources used in this article were the papers by Jean Downes and associates on the studies in Mount Kisco and Pleasantville, N. Y., published in the *Milbank Memorial Fund Quarterly* in 1951 and 1952; the articles by John H. Dingle and associates on the studies in Cleveland, published in the *American Journal of Hygiene* in 1953; and various studies by Selwyn D. Collins and others of the Public Health Service.

## Young Widows and Their Dependents

WIDOWHOOD has been increasingly postponed to the older ages as a result of the steady decline in mortality prior to midlife. Nevertheless, even now a large number of family heads in our country die at the early adult and middle ages. Last year, for example, death took about 115,000 husbands under 55 years of age. In most families, the loss of the breadwinner at this period of life places a heavy social and economic burden on his wife and children. Some characteristics

## CHARACTERISTICS OF WHITE WOMEN WIDOWED LESS THAN 10 YEARS AT 1950 CENSUS

| Duration of Widowhood | Age at Which Widowhood Began | | | | | | |
|---|---|---|---|---|---|---|---|
| | 14-49 | 14-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 |
| | Number, in Thousands | | | | | | |
| Total | 699 | 47 | 54 | 79 | 116 | 161 | 242 |
| | Percent Distribution by Duration | | | | | | |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Less than 2 years | 17.9 | 22.3 | 19.4 | 18.6 | 19.9 | 16.2 | 16.6 |
| 2-4 years | 32.3 | 31.2 | 33.0 | 33.1 | 33.0 | 30.6 | 32.9 |
| 5-9 years | 49.8 | 46.5 | 47.6 | 48.3 | 47.1 | 53.2 | 50.5 |
| | Percent with Children Ever Born | | | | | | |
| Total | 79.0 | 76.5 | 78.3 | 77.2 | 77.8 | 79.3 | 80.6 |
| Less than 2 years | 77.1 | 68.5 | 78.6 | 76.6 | 81.7 | 76.7 | 76.8 |
| 2-4 years | 79.0 | 78.3 | 77.6 | 80.5 | 75.8 | 80.1 | 79.7 |
| 5-9 years | 79.7 | 79.3 | 78.6 | 75.2 | 77.6 | 79.6 | 82.5 |
| | Percent in the Labor Force | | | | | | |
| Total | 54.3 | 51.6 | 54.8 | 61.0 | 60.7 | 57.6 | 47.3 |
| Less than 2 years | 47.7 | 44.7 | 43.9 | 47.2 | 49.4 | 51.8 | 46.0 |
| 2-4 years | 56.3 | 52.9 | 54.0 | 61.7 | 64.4 | 58.7 | 50.4 |
| 5-9 years | 55.4 | 54.0 | 59.8 | 65.9 | 62.9 | 58.8 | 45.7 |
| | Percent Residing in Nonfarm Areas | | | | | | |
| Total | 92.2 | 89.9 | 92.4 | 91.5 | 92.7 | 91.8 | 92.8 |
| Less than 2 years | 91.8 | 88.3 | 95.7 | 93.3 | 92.7 | 88.9 | 92.6 |
| 2-4 years | 91.7 | 87.5 | 92.0 | 90.8 | 91.6 | 91.2 | 93.0 |
| 5-9 years | 92.7 | 92.3 | 91.3 | 91.4 | 93.6 | 93.0 | 92.8 |
| | Percent With at Least a High School Education | | | | | | |
| Total | 32.9 | 41.1 | 43.8 | 38.9 | 35.0 | 33.1 | 25.6 |
| Less than 2 years | 34.8 | 35.3 | 45.5 | 45.0 | 32.9 | 35.2 | 28.9 |
| 2-4 years | 33.9 | 42.4 | 45.0 | 37.5 | 37.1 | 34.0 | 26.9 |
| 5-9 years | 31.5 | 42.9 | 42.2 | 37.5 | 34.4 | 32.0 | 23.8 |

Note: Excludes widows under 15 years of age at time of 1950 Census.

Source of basic data: Bureau of the Census, *U. S. Census of Population: 1950.* Vol. IV, *Special Reports,* Part 2, Chapter E, *Duration of Current Marital Status,* Washington, 1955, Tables 27-30.

of the younger and the more recently widowed white women are shown in the accompanying table; the data are derived from information gathered in the 1950 Census.

There were about 700,000 white widows in the United States in April 1950 who had lost their husband within the preceding decade and who were under 50 years of age at the time of their loss. This number, large as it is, obviously does not include the women who had remarried or who had been widowed more than 10 years. Of the women included in this study, almost one third had been widowed 2-4 years and one half for 5-9 years.

Four fifths of the widows had borne children before they lost their husband. The proportion varied little with the woman's age when her marriage was disrupted. Many of the children in such families were quite young when orphaned by the death of their father, and were thus far from the age when they could become self-supporting. In the aggregate, the white widows in the United States who were under 50 years of age in 1950 had about 80,000 children under age five in their care. The problem was most acute for the widows in their early twenties, among whom nearly three out of every five were responsible for preschool children. Although the proportion of widows with young children falls off with advance in age, the number with two or more dependent children is greater for the older than the younger women.

About 54 percent of the widows included in this study were gainfully employed in 1950. For the younger women in the first two years of widowhood the proportion was appreciably smaller, yet about 44 percent of them were in the labor force. No doubt many of the young widows were compelled to work through economic necessity at some sacrifice to their child-rearing duties. The fact that nine out of every 10 resided in cities or other nonfarm areas probably helped them to obtain employment.

It is noteworthy that among the women widowed before age 35, the proportion in the labor force increases with each advance in duration of widowhood, whereas among those widowed after that age it generally reaches a peak for those widowed 2-4 years. The decline in participation for middle-aged widows may be due, in part at least, to the increasing difficulty of earning a livelihood at this stage of life, particularly for those who have been out of the labor market for many years.

The older widow seeking employment is often handicapped by her lack of adequate formal education—a situation which reflects the generally lower level of educational achievement in former years. Among all white women widowed for less than 10 years, approximately one third have gone through high school or beyond. However, the proportion with this amount

of schooling is lower for those widowed at an older age. In fact, among those whose marriage was disrupted at ages 45-49, only one fourth were high school graduates.

The problems of widowhood are many, a common one being the readjustment to reduced circumstances after the death of the breadwinner. These problems are especially acute where there are dependent children. By exercising initiative and foresight, the typical American family provides for the contingency of early widowhood through Life insurance.

## Outlook for Persons With Physical Impairments*

THE long-range effect of various physical impairments on mortality has been the subject of a number of Life insurance studies. The most recent—the 1951 Impairment Study† covering the experience of 27 companies—investigated the survivorship record of 625,000 persons with physical impairments who were accepted for Ordinary insurance during the years 1935-49 and traced through the anniversary of their policies in 1950. Thus, some persons were observed for as long as 15 years, the average period of observation for the group being slightly over six years. For the most part, the insured were white middle-class men living in urban areas. All were medically examined when they applied for insurance and, as a rule, only the best of the impaired risks were accepted.

The study covered a wide variety of impairments, but the discussion here will be limited to only a few of the important ones—heart murmurs, family history of cardiovascular-renal disease, stomach and duodenal ulcers, and gallbladder disorders. In order to measure the effect of various impairments on longevity, the survivorship and mortality record of persons with such impairments was compared with the contemporaneous experience among all persons to whom Life insurance was issued at standard premium rates.

Persons with systolic murmurs heard over the apex of the heart, presumably indicative of an organic impairment, constituted one of the largest groups in the 1951 Impairment Study. The long-term survivorship rate among them was distinctly lower than that for standard risks. Among persons in the age range 30-64 years when they applied for insurance, the proportion alive at the end of 15 years was 92.0 percent for standard risks, 85.5 percent for those with a murmur of this type but without a history of rheumatic or strepto-

*Based upon an article, "Prognostic Value of Life Insurance Mortality Investigations" by Dr. William Bolt, Chief Medical Director of the New York Life Insurance Company, and Edward A. Lew, Actuary and Statistician of the Metropolitan Life Insurance Company, in the *Journal of the American Medical Association*, March 3, 1956

†Society of Actuaries, April 1954

coccic infection, and 84.2 percent for those with such history. In the 15-year period, the mortality among those without a record of rheumatic or streptococcic infection was about double that among standard risks, while among those with a history of such infection the mortality was 2.4 times that among standard risks.

Enlargement of the heart likewise reduced the survivorship of persons with apical systolic murmurs, the adverse effect increasing with the degree of enlargement.

The relatively high mortality among persons with systolic murmurs heard over the apex of the heart reflected in large measure the excess number of deaths from the heart and other circulatory diseases. Their mortality from cancer was also significantly higher than normal, but the reason for this finding is obscure. Although the death rate among insured persons with apical systolic murmurs was several times as high as among standard risks in the period under review, it was materially lower than it had been a quarter century earlier.

The 1951 Impairment Study also investigated the experience of policyholders who on application for insurance had reported two or more cases of cardiovascular-renal disease occurring prior to age 60 among members of their immediate family. The survivorship of persons with such family history was moderately but significantly lower than that among standard risks, the proportion alive at the end of 15 years being 88.4 and 92.0 percent, respectively, for those at ages 30-64 years when they applied for insurance. In the 15-year period, the mortality from all causes combined among the insured with a family history of early cardiovascular-renal disease was 1.4 times that among standard risks, whereas the death rate from the cardiovascular-renal diseases among these insured was nearly twice that among standard risks.

A supplementary study made by two large Life insurance companies showed that among insured persons who in addition to having reported a family history of early cardiovascular-renal disease, either were slightly overweight or had a slight elevation in blood pressure, mortality was 1.7 times that among standard risks; however, among those reporting such family history but free from these impairments, mortality was only 1.25 times that among standard risks. The difference, although small, is statistically significant, indicating that family history of early cardiovascular disease together with conditions associated with cardiovascular disease, such as excessive weight or hypertension, is of much greater consequence than these associated conditions alone.

Another large group in the 1951 Impairment Study comprised policyholders with a history of ulcer of the stomach or duodenum prior to acceptance for insurance; nearly 96 percent of them were males.

There were approximately three times as many cases of duodenal ulcers as of stomach ulcers.

Survivorship for persons with a history of stomach or duodenal ulcer within five years of acceptance for insurance was not as good as for standard risks. The record was appreciably better for medically treated cases (excluding those with a history of hemorrhage) than for the surgically treated, apparently because surgery was generally resorted to only in the more serious cases. Among the insured with a history of ulcer in either site medically treated, the mortality was 1.2 times that among standard risks; the mortality among the surgically treated was 2.1 times that for standard risks among persons with stomach ulcers and 1.9 times the standard among those with duodenal ulcers.

The study included about 5,900 persons who had a history of gallbladder disorders medically treated and approximately 15,300 whose gallbladders had been removed or drained. Policyholders in both these categories had a somewhat less favorable survivorship record than standard risks. Among the insured surgically treated within 10 years of acceptance for insurance, the proportion surviving for a 15-year period was higher for those in whom the gallbladder had been removed than for those in whom the gallbladder had been drained.

## The Death Toll From Tornadoes

TORNADOES in the United States took 1,766 lives during the decade 1946-55 and inflicted injuries on approximately 10 times that number of people. The loss of life in such storms varied considerably from year to year, but there has been a general tendency for the toll to decrease from one decade to another in the 40 years for which the Weather Bureau has kept systematic records of tornadoes; the details appear in Table 1. The past decade shows the smallest number of deaths, despite the fact that the loss in 1953—516 lives—was one of the largest for any year on record.

At least 3,000 tornadoes struck

TABLE 1—DEATHS FROM TORNADOES
United States, 1916-55

| Years | Number of Deaths |
|---|---|
| 1916-25 | 3,114 |
| 1926-35 | 2,138 |
| 1936-45 | 1,896 |
| 1946-55 | 1,766 |
| 1946 | 77 |
| 1947 | 307 |
| 1948 | 141 |
| 1949 | 213 |
| 1950 | 70 |
| 1951 | 34 |
| 1952 | 230 |
| 1953 | 516 |
| 1954 | 35 |
| 1955 | 143* |

* Provisional.
Source of basic data: Weather Bureau climatological reports.

TABLE 2—NUMBER OF DEATHS FROM TORNADOES
By State, 1946-55

| State | Deaths | State | Deaths | State | Deaths |
|---|---|---|---|---|---|
| United States | 1,766 | West North Central (continued) | | West South Central | 813 |
| New England | 93 | Iowa | 12 | Arkansas | 250 |
| Maine | 1 | Missouri | 79 | Louisiana | 78 |
| New Hampshire | 1 | North Dakota | 14 | Oklahoma | 183 |
| Vermont | 0 | South Dakota | 0 | Texas | 302 |
| Massachusetts | 91 | Nebraska | 31 | | |
| Rhode Island | 0 | Kansas | 98 | Mountain | 4 |
| Connecticut | 0 | | | Montana | 3 |
| | | South Atlantic | 64 | Idaho | 0 |
| Middle Atlantic | 8 | Delaware | 0 | Wyoming | 0 |
| New York | 0 | Maryland | 0 | Colorado | 1 |
| New Jersey | 0 | District of Columbia | 0 | New Mexico | 0 |
| Pennsylvania | 8 | Virginia | 1 | Arizona | 0 |
| | | West Virginia | 4 | Utah | 0 |
| East North Central | 271 | North Carolina | 6 | Nevada | 0 |
| Ohio | 29 | South Carolina | 5 | | |
| Indiana | 42 | Georgia | 39 | Pacific | 0 |
| Illinois | 54 | Florida | 9 | Washington | 0 |
| Michigan | 128 | | | Oregon | 0 |
| Wisconsin | 18 | East South Central | 248 | California | 0 |
| | | Kentucky | 11 | | |
| West North Central | 265 | Tennessee | 88 | | |
| Minnesota | 31 | Alabama | 52 | | |
| | | Mississippi | 97 | | |

Source: Same as Table 1.

the United States in the past 10 years, but fortunately only in relatively few instances was the number of deaths appreciable. How much damage a tornado leaves in its wake depends mainly on its intensity, its duration, the extent of the area it covers, and the density of population there. The heaviest death toll in the period under review resulted from the series of tornadoes which swept through the Missouri Valley States on the weekend of March 22, 1952, taking 208 lives. Another series of such storms in June of the following year killed 142 persons in Michigan and Ohio, most of them in the vicinity of Flint. In May of last year about 115 deaths resulted from a group of tornadoes which struck Kansas and several southwestern States. The largest loss of the decade in a single tornado—169 lives—occurred in Oklahoma and Texas during April 1947.

Year after year the midwest and southwest bear the brunt of the destructive force of tornadoes. As Table 2 shows, the four West South Central States accounted for a loss of 813 lives, or nearly half

of the total in the United States during the past decade. Three of these States had the worst records in the entire country—Texas with 302 deaths, Arkansas with 250, and Oklahoma with 183. Ranking next to the West South Central States were the East North Central, the West North Central, and the East South Central areas, each of which contributed about one seventh of the deaths. At the other extreme, the Pacific Coast States had no tornado deaths whatever, while the Mountain and the Middle Atlantic States experienced very few.

The geographic picture reflects in some measure the marked variability of tornadoes. Of the 93 deaths reported in New England during the past decade, 90 were due to the tornado which lashed Worcester County, Mass., in June 1953. Similarly, nearly half of all the tornado deaths in the East North Central area in the 10-year period were accounted for by the storm which hit Michigan that same June. Even in the heart of the tornado belt, the loss of life varies widely from year to year. Thus, Texas suffered 146 tornado deaths in 1953, but none in the year before, and only three in the year after.

Fatal injuries sustained in tornadoes show a seasonal as well as a geographic concentration. In the decade under review, May was the peak month, accounting for nearly one fourth of the tornado deaths in the United States; March was a close second, as may be seen in the chart below. Altogether, practically four fifths of the fatalities occurred from March through June.

Although tornadoes are extremely unpredictable, in many instances it is possible to give some advance warning to communities in their path. In recent years the Weather Bureau has developed warning systems in areas where tornadoes are frequent. With further expansion of these systems and with advances in forecasting techniques, it should be possible to reduce appreciably the death toll from such storms.

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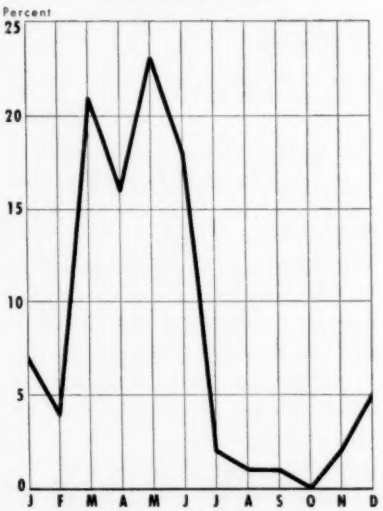
**DEATHS FROM TORNADOES**

Percent Distribution by Month
United States, 1946-55




Source: Same as Table 1.

## MORTALITY FROM SELECTED CAUSES

Industrial Policyholders, Metropolitan Life Insurance Company
February 1956

| Cause of Death | Annual Rate per 100,000 Policyholders* | | | | |
|---|---|---|---|---|---|
| | February | | Year to Date | | |
| | 1956 | 1955 | 1956 | 1955 | 1954 |
| All Causes† | 654.2 | 670.8 | 677.4 | 673.7 | 687.1 |
| Tuberculosis (all forms) | 7.6 | 8.4 | 7.8 | 8.8 | 10.1 |
| Communicable diseases of childhood | .3 | .4 | .3 | .5 | .2 |
| Acute poliomyelitis | .1 | .3 | .2 | .3 | .3 |
| Malignant neoplasms | 129.3 | 131.5 | 132.0 | 132.3 | 130.1 |
| Digestive system | 43.0 | 42.7 | 44.6 | 45.1 | 47.2 |
| Respiratory system | 18.0 | 17.7 | 18.0 | 16.6 | 16.6 |
| Diabetes mellitus | 15.0 | 16.9 | 16.5 | 16.9 | 17.1 |
| Diseases of the cardiovascular-renal system | 358.1 | 362.2 | 366.4 | 363.6 | 367.8 |
| Vascular lesions, central nervous system | 69.0 | 69.3 | 71.1 | 71.0 | 69.2 |
| Diseases of heart | 262.6 | 265.1 | 268.8 | 264.9 | 270.9 |
| Chronic rheumatic heart disease | 12.6 | 14.3 | 12.8 | 14.9 | 14.3 |
| Arteriosclerotic and degenerative heart disease | 205.1 | 202.2 | 209.6 | 203.3 | 202.5 |
| Diseases of coronary arteries | 115.2 | 114.8 | 119.8 | 115.4 | 121.3 |
| Hypertension with heart disease | 35.4 | 39.4 | 37.2 | 37.9 | 42.9 |
| Other diseases of heart | 9.5 | 9.2 | 9.2 | 8.8 | 11.2 |
| Nephritis and nephrosis | 8.7 | 9.1 | 8.6 | 10.1 | 10.5 |
| Pneumonia and influenza | 19.7 | 20.8 | 21.2 | 20.5 | 18.2 |
| Complications of pregnancy, childbirth | .8 | .9 | .8 | .9 | .8 |
| Suicide | 5.0 | 6.3 | 5.2 | 5.7 | 5.5 |
| Homicide | 1.8 | 2.1 | 2.0 | 2.2 | 2.6 |
| Accidents—total | 35.1 | 32.0 | 38.5 | 34.0 | 36.2 |
| Motor vehicle | 14.3 | 13.4 | 16.8 | 14.2 | 15.0 |
| All other causes | 81.4 | 89.0 | 86.5 | 88.0 | 98.2 |

* Persons insured under Weekly and Monthly Industrial premium-paying policies for 1954; 1955 and 1956 include in addition persons with Ordinary Monthly Premium Policies for Less Than $1,000.

† Excludes war deaths (enemy action).

Note: The rates for 1955 and 1956 are provisional.

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# MORTALITY FROM ALL CAUSES

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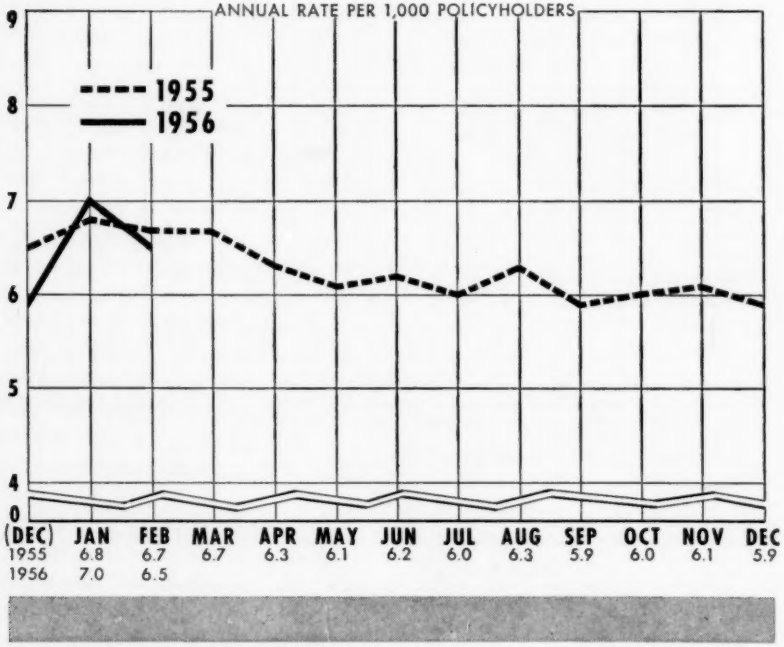


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